For battle damage caused in observed fires, the fire direction officer (FDO) in the direct support (DS) battalion tactical operations center (TOC), the FAIO at the division main command post (DMAIN) and the fire support officer (FSO) at the maneuver brigade fire support element (FSE) collect the artillery BDA for consolidation by the counterfire officer at the FA brigade TOC. These reports capture what the forward observers (FOs) saw on the battlefield.

For unobserved GS fires, the BDA is collected and consolidated by the counterfire headquarters—the FA brigade. Because there are no observers to count the damaged tubes or launchers, the model relies on mission-fired reports (MFRs) for missions executed within a certain time.

During Dragon Summit, the 10th Division Artillery applied two time rules before assessing battle damage on unobserved targets. The first was for fires delivered by the counterfire headquarters. In this case if rounds were sent down range within five minutes of the moment the target was acquired by the Q-37 Firefinder radar, then the counterfire officer in the FA brigade TOC assessed the damage according to the JMEM.

The FAIO in the DMAIN applied the second rule. In this case if a division-level delivery system—fixed-wing air, attack helicopter, Army tactical missile system (ATACMS), etc.—attacked a stationary target within 30 minutes, then the FAIO determined the damage by the JMEM. For BDA to be posted on the Murder Board, the unobserved mission fired had to be executed within the time specified by the rules. This time constraint ensured the targeting data was still valid when the mission was fired.

The FAIO in the DMAIN plays an important role in artillery BDA collection. (See the "FAIO's Steps in Killing a Target" on this page.) He accounts for not only the unobserved fires executed within 30 minutes, but also observed fires from assets available at the division-level—for example, special operations forces (SOF) or unmanned aerial vehicles (UAVs).

The FAIO, the S2 at the division artillery TOC and the counterfire officer at the FA brigade TOC each independently updates his copy of the Murder Board, analyzing the raw BDA data, and then pools the information collected every four hours. The fire supporters at these organizations resolve discrepancies among the Murder Board versions before updating the division artillery commander.

Baptism Under Fire. At the beginning of the exercise, the 213 enemy systems recorded on the Murder Board (enemy strength based on knowledge of/intelligence on the enemy) as compared to the 202 actual systems were about 95 percent accurate. This initial estimate set a solid data base upon which to determine BDA when the Warfighter preparation fires began.

Figure 2 shows the actual and perceived enemy strengths recorded approximately 24 hours after the exercise started. The Murder Board statistics reflect that the 10th Division had reduced the enemy's indirect fire systems by 127 systems with a perceived total of 86 systems remaining. In reality, the enemy had lost 67 of its indirect fire systems for an actual total of 135 remaining systems—a 36 percent disparity between reality and the Murder Board. (At this point in the battle, unobserved counterfires accounted for nearly 90 percent of the BDA on the Murder Board.) Clearly, the model needed to be

Iraqi D-30 Howitzer, 1991

FAIO's Steps in Killing a Target

1. A target is acquired.

2. The Field Artillery Intelligence Officer (FAIO) at the division main command post (DMAIN) checks the time of acquisition to ensure the targeting data is still valid.

3. The FAIO evaluates the target: is the target on the high-payoff target list (HPTL), is the target location error (TLE) of the collection asset good enough and are there enough firing units and ammunition available? If the acquirer's TLE is too imprecise to fire a target on the HPTL, the FAIO can initiate collection by a more accurate acquisition asset.

4. If target data meets the requirements, the FAIO generates a fire mission; delivery assets include the Army tactical missile system (ATACMS), attack helicopters, fixed-wing aircraft, naval surface fires, etc.

5. When the time the target was fired is sent back to the FAIO, he assesses battle damage. For unobserved fires, he assesses battle damage from the Joint Munitions Effectiveness Manual (JMEM) if a target acquired by the all-source collection element (ACE) was attacked within 30 minutes or if a target acquired by a Q-37 radar was attacked within five minutes. He records the damage to enemy artillery systems on the Murder Board, a "bean-counting" document also maintained by the S2 at the division artillery tactical operations center (TOC) and the counterfire officer at the FA brigade TOC.

6. When the shot time does not get sent to the FAIO, he can use intelligence collectors, such as the unmanned aerial vehicle (UAV) or special operations forces (SOF), to assess the damage. He records the battle damage observed by the UAV or SOF on the Murder Board.

7. Every four hours, the FAIO shares his Murder Board information with the division artillery S2 and FA brigade counterfire officer.

8. A new target is acquired, and the steps repeat themselves.

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